DEAS/105: 2025

ICS 67.140.20

EAST AFRICAN STANDARD

Roasted coffee beans and roasted ground coffee — Specification

EAST AFRICAN COMMUNITY

Fourth Edition 2025

Contents

Page

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 002, *Coffee, cocoa, and related products.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This fourth edition cancels and replaces the third edition (EAS 105:2020), which has been technically revised.

Roasted coffee beans and roasted ground coffee — Specification

1 Scope

This Final Draft East African Standard specifies the requirements, sampling and test methods for roasted coffee beans and roasted ground coffee.

This standard also applies to decaffeinated roasted coffee beans and roasted ground coffee.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CODEX STAN 192, *General standard for food additives*

EAS 38, *Labelling of pre-packaged foods — General requirements*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

DEAS 130, *Green coffee beans — Specification*

ISO 3509, *Coffee and coffee products — Vocabulary*

ISO 4832*, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

CAC/GL 50, General Guidelines on Sampling

ISO 11294, *Roasted ground coffee — Determination of moisture content — Method by determination of loss in mass at 103 degrees C (Routine method)*

ISO 20481, *Coffee and coffee products — Determination of the caffeine content using high performance liquid chromatography (HPLC) — Reference method*

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3509 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1

roasted coffee beans

product obtained by roasting green coffee beans

3.2

roasted ground coffee

product obtained by grinding roasted coffee beans

3.3

decaffeinated coffee

coffee from which caffeine has been removed by extraction

4 Requirements

4.1 General requirements

4.1.1 Roasted coffee beans and roasted ground coffee shall be obtained from green coffee beans complying with EAS 130.

4.1.2 Roasted coffee beans and roasted ground coffee shall be free from:

a) extraneous and foreign matter;

b) foreign/off odour;

c) fungal infestation; and

d) living and dead insects, insect fragments and rodent contamination.

4.2 Specific requirements

Roasted coffee beans and roasted ground coffee shall comply with the specific requirements given in Table 1 when tested in accordance with test methods specified therein.

Table 1 — Specific requirements for roasted coffee beans and roasted ground coffee

S/N	Characteristic	Requirement	Test method
i.	Moisture, % m/m, max.	6.0	ISO 11294
ii.	Total ash (on dry basis), % m/m	2.0 – 5.0	Annex A
iii.	Acid insoluble ash (on dry basis), % m/m, max.	1.0	Annex B
iv.	Water soluble matter (on dry basis), % m/m	25 – 32	Annex C
v.	Alkalinity of water-soluble ash in millilitres of 0.1 N hydrochloric acid per gram of material (on dry basis)	3.5 – 7.0	Annex D
vi.	Caffeine (on dry basis), % m/m	0.8, min	ISO 20481
		0.3 max. for decaffeinated coffee	

4.3 Particle size

Roasted ground coffee may comply with particle size requirements given in Table 2.

Table 2 — Particle size of roasted ground coffee

Type	% by weight retained on 710-µm sieve	% by weight retained on 500-µm sieve	% by weight retained on 355-µm sieve
Fine	10	15	50
Medium	20	20	30
Coarse	30	25	15

5 Food additives

Roasted coffee beans and roasted ground coffee may contain only permitted food additives stated in CXS 192.

6 Hygiene

6.1 Roasted coffee beans and roasted ground coffee shall be processed, packaged, stored and distributed under hygienic conditions in accordance with EAS 39.

6.2 Roasted coffee beans and roasted ground coffee shall not exceed the microbiological limits given in Table 3 when tested in accordance with test methods specified therein.

Table 3 — Microbiological limits for roasted coffee beans and roasted ground coffee

S/N	Microorganism	Limit	Test method
i.	Coliforms, cfu/g	<10	ISO 4832
ii.	Yeast and moulds, cfu/g, max.	10^2	ISO 21527-2

7 Packaging

Roasted coffee beans and roasted ground coffee shall be packaged in food grade packaging material, which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the products.

8 Labelling

In addition to the labelling requirements given in EAS 38, the package shall be legibly and indelibly marked with the following information:

a) name of the product as “Roasted coffee beans” or “Roasted ground coffee”;

b) declaration of decaffeinated coffee;

c) name, location and physical address of the manufacturer/packer/distributor;

d) country of origin;

e) declaration of food additives, if used;

f) date of manufacture;

g) best before;

h) declaration of particle size, where applicable;

i) instructions for storage;

j) instructions for use;

k) net content; and

l) batch/lot number.

9 Sampling

Except where sampling methods have been specified in specific test methods, sampling of roasted coffee beans and roasted ground coffee shall be done in accordance CAC/GL 50.

Annex A
(normative)

Determination of total ash

A.1 Procedure

Weigh accurately about 5 g of the material in a platinum dish. Heat at 100 ºC ± 2 ºC until water is expelled and then heat slowly over a flame until swelling ceases. Ignite in a muffle furnace at 550 ºC ± 10 ºC until grey ash results. Cool the dish in a desiccator and weigh. Repeat this process of heating for 30 min, cooling in a desiccator, and weighing until the difference between two successive weighings is less than one milligram. Record the lowest mass.

NOTE Preserve the dish containing this ash for the determination of acid insoluble ash.

A.2 Calculation

The total ash (on dry basis), expressed as percent by mass, shall be calculated as follows:

$$\frac{10\,000\,(m_2 - m)}{(m_1 - m)\,(100 - H)}$$

where

m_2 is the mass, in grams, of the dish with the ash,

m is the mass, in grams, of the empty dish,

m_1 is the mass, in grams, of the dish with the material, and

H is the percentage of moisture.

Annex B
(normative)

Determination of acid insoluble ash

B.1 Reagent

Dilute hydrochloric acid, approximately 5 N, prepared from concentrated hydrochloric acid

B.2 Procedure

B.2.1 Add 25 ml of dilute hydrochloric acid to the ash contained in the dish.

B.2.2 Cover the dish with a watch-glass and heat it on a water-bath for 10 min.

B.2.3 Allow to cool and filter the contents of the dish through Whatman filter paper No. 42 or its equivalent.

B.2.4 Wash the filter paper till the washings are free from the acid.

B.2.5 Return the filter paper and the residue to the dish. Keep it in an electric air-oven maintained at 135 ºC ± 2 ºC for about 3 h. Ignite in a muffle furnace, cooling and weighing at half-hour intervals until the difference in weight between the two successive weighings at half-hour intervals until the difference in weight between the two successive weighings is less than one milligram.

B.2.6 Record the lowest mass.

B.3 Calculation

The acid insoluble ash (on dry basis), expressed as percent by mass, shall be calculated as follows:

$$\frac{10\,000\,(W_2 - W)}{(W_1 - W)\,(100 - M)}$$

where

W_2 is the mass, in grams, of dish with acid insoluble ash,

W is the mass, in grams, of empty dish,

W_1 is the mass, in grams, of dish with the material, and

M is the percentage of moisture.

Annex C
(normative)

Determination of water soluble matter

C.1 Procedure

Weigh accurately about 2 g of the material in a 500-ml-Erlenmeyer flask and add 200 ml of water and reflux over a low flame for 1 h. Cool and filter through a Whatman filter paper No. 1 or its equivalent, wash three times with 10 ml to 15 ml of water finally make up to 250 ml in a graduated flask. Shake well and pipette a 50-ml aliquot in a pre-weighed empty dish and evaporate to dryness for one hour in an oven at 100 ºC ± 2 ºC, cool in a desiccator and weigh. Repeat this process of heating for 30 min, cooling in a desiccator and weighing until the loss in mass between two successive weighings is less than one milligram. Record the lowest mass.

C.2 Calculation

The water insoluble matter (on dry basis), expressed as percent by mass, shall be calculated as follows:

$$\frac{50\,000\,(m_2 - m_1)}{m\,(100 - H)}$$

where

m_2 is the mass, in grams, of the dish with the dried water soluble matter,

m_1 is the mass, in grams, of the empty dish,

H is the percentage of moisture as determined in accordance with ISO 11294, and

m is the mass, in grams, of the material in Erlenmeyer flask.

Annex D
(normative)

Determination of alkalinity of soluble ash

D.1 Reagents

D.1.1 Standard hydrochloric acid, 0.1 N

D.1.2 Methyl orange in distilled water, dissolve 0.5 g of methyl orange in 500 ml of distilled water. Filter, if necessary.

D.2 Procedure

D.2.1 Weigh accurately about 5 g of the material in a platinum dish. Heat at 100 ºC ± 2 ºC until water is expelled and then heat slowly over a flame until swelling ceases. Ignite in a muffle furnace at 550 ºC ± 10 ºC until grey ash results.

D.2.2 On the obtained ash, dissolve with 40 ml of distilled hot water and filter. Rinse the platinum dish with distilled with two portions of 10 ml of distilled hot water and add each portion to the filter paper. Titrate the filtrate obtained with standard hydrochloric acid, using the methyl orange as indicator. Record the volume, in millilitres, of the acid used.

D.2.3 Calculate the quantity of 0.1 N hydrochloric acid required to neutralize the water soluble ash from 1 g of the dry material.

D.3 Calculation

The alkalinity of soluble ash on dry basis, expressed as millilitres of 0.1 N hydrochloric acid per gram of material, shall be calculated as follows:

$$\frac{100\,V}{m\,(100-w)}$$

where

V is the volume, in millilitres, of 0.1 N hydrochloric acid,

W is the moisture content, and

m is mass, in grams, of the sample.

Annex E
(normative)

Determination of petroleum ether extract

E.1 Apparatus

Soxhlet extraction apparatus

E.2 Reagent

Petroleum ether (boiling point 40 ºC to 60 ºC)

E.3 Procedure

Weigh accurately about 10 g of the material in a suitable thimble and dry for 2 h at 100 ºC ± 2 ºC. Place the thimble in the Soxhlet extraction apparatus and extract with the solvent for about 16 h. Dry the extract contained in the Soxhlet flask, the empty weight of which has been previously determined, at 95 ºC to 100 ºC for an hour. Cool in a desiccator and weigh. Continue the alternate drying and weighing at 30 min intervals until the loss in weight between two successive weighings is not more than 1 mg. Record the lowest weight.

E.4 Calculation

The petroleum ether extract (on dry basis), expressed as percent by weight, shall be calculated as follows:

$$\frac{10000(W_1 - W_2)}{W(100 - M)}$$

where

W_1 is the mass, in grams, of Soxhlet flask with the petroleum ether extract,

W_2 is the mass, in grams, of Soxhlet flask, clean and dry,

W is the mass, in grams, of the material taken for test,

M is the percentage of moisture.

Bibliography

EAS 105:2020, *Roasted coffee beans and roasted ground coffee — Specification*